

Claims

10 1. A position sensor designed in the form of a Hall
sensor, comprising an elongated circuit substrate (32)
designed as a molded interconnect device (MID), which
includes an elongated support element (34) consisting of
injection molded plastic material and having at a front
end side (37) thereof a support face (36) which is so
15 fitted with a sensor element (26) including a Hall plate
(27) or constituted by a Hall plate (27) that the plane
(29) of the Hall plate (27) extends at a right angle to
the longitudinal axis (33) of the circuit substrate (32),
the sensor element (26) being electrically contacted by
20 means of printed wiring (35) constituted by a structured
metal layer applied to the support element (34).

25 2. The position sensor as set forth in claim 1,
characterized in that an electrical lead (38) extends from
the rear side, opposite to the front end side (37), of the
circuit substrate (32), electrical conductors (42) of the
lead being contacted by printed wiring (35) of the circuit
substrate (32).

30 3. The position sensor as set forth in claim 2,
characterized that the printed wiring (35) extends on its
path between the sensor element (26) and the electrical
conductors (42) of the lead (38) at least partially at the
bottom side of the support element (34).

4. The position sensor as set forth in any one of the claims 1 through 3, characterized in that the printed wiring (35) extends at least partially in recesses (44) in the support element (34) and is covered in a hermetically sealing fashion by filler material applied to the recesses (44).

5
10 5. The position sensor as set forth in any one of the claims 1 through 4, characterized in that the support element (34) is fitted with electronic components (43) on the printed wiring (35).

15 6. The position sensor as set forth in any one of the claims 1 through 5, characterized in that the sensor element (26) and the printed wiring (35) and furthermore any electronic components (43) provided on the support element are encapsulated in a casing body (46) of plastic material, which is molded in position by injection molding on the support element (34).

20 7. The position sensor as set forth in claim 6, characterized in that the material of the casing body (46) is transparent to light so that optical signals of encapsulated optical display means (43') may emerge.

25 8. The position sensor as set forth in any one of the claims 1 through 7, characterized in that the support face (36) for the sensor element (26) is orientated in the longitudinal direction (33) of the circuit substrate (32), 30 a normal to its face being more especially co-directional with the longitudinal axis (33) of the circuit substrate (32).

35 9. The position sensor as set forth in claim 8, characterized in that the support face (36) is provided

directly on the front end side of the support element (34).

5 10. The position sensor as set forth in any one of
the claims 1 through 9, characterized in that the front
end region of the (34) is constituted by a T-like support
section (47) which, together with a connecting neck (48)
extending in the longitudinal direction in the middle and
with an adjoining transversely extending support board
10 (49), defines the support face (36).

15 11. The position sensor as set forth in any one of
the claims 1 through 10, characterized in that the sensor
element (26) is a Hall chip provided with an evaluating
electronic system, as for example an ASIC, in addition to
the Hall plate (27).

20 12. The position sensor as set forth in any one of
the claims 1 through 11, characterized in that between the
front and the rear end region of the circuit substrate
(32) an attachment means (55) is provided for releasable
clamping attachment of the position sensor (7) in an
attachment slot (8) in another component (2).

25 13. The position sensor as set forth in claim 12,
characterized by a single attachment means (55) placed on
the circuit substrate (32) in longitudinal middle thereof.

30 14. The position sensor as set forth as set forth in
any one of the claims 1 through 13, which is designed to
be placed during use in such a fashion in an attachment
slot (8) in a component (2) that its longitudinal axis
extends parallel to the longitudinal axis (17) of the
attachment slot (8) and possesses attachment means (15)
35 rendering possible a detachable clamping attachment in the

attachment slot (8).

5 15. The position sensor as set forth in any one of
the claims 1 through 14, characterized in that the circuit
substrate (32) at least partially constitutes the sensor
housing.

10 16. The position sensor as set forth in any one of
the claims 1 through 14, characterized by a further Hall
sensor element (54) whose Hall plate (54') whose alignment
is unlike that of the Hall plate (27) of the other sensor
element (26).